NRC NEWS

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A TIME FOR REFLECTION, A TIME FOR ACTION

Remarks of Chairman Nils J. Diaz

before the

NRC Regulatory Information Conference

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I. Introduction and Overview

My fellow Commissioners, distinguished foreign guests, and distinguished representatives of the NRC staff, stakeholder organizations, the media, and the public, it is a great pleasure to welcome you here this morning. This is the eighth Regulatory Information Conference I have attended, and I always look forward to this opportunity to see many old friends and acquaintances. This is also a time to take stock of the past and look toward the years ahead. After all, Atoms for Peace is 50 years old, and the 25th Anniversary of the TMI accident is around the corner. This is a good time for reflection and a better time for action.

At last year's RIC, I presented my approach to regulation, which I described as "realistic conservatism": conservative in the sense of preserving adequate safety margins, and realistic in the sense of being anchored in the real world of physics, engineering, and experience. I expanded on my views at the October 2003 annual NRC-sponsored Nuclear Safety Research Conference by discussing "Realism and Conservatism" and their importance to sound technical decision making and the public well-being. I believed then, but I am convinced now, that 21st century nuclear regulation needs to be anchored in a realistic conservatism, or conservative realism and especially so if we are to avoid the twin pitfalls of under-regulation and over-regulation. I see realism and conservatism as enabling factors for safety and reliability. I promised then that if faced with a "damned if you do, damned if you

don't choice," I would rather be faulted for action than inaction. I have seen plenty of actions in the past year; I believe you have too. Finally, I promised plain speaking: making clear, as candidly as possible, where I stand on the issues that concern the NRC and its stakeholders. And it's in that spirit that I'd like to talk to you today about the regulatory challenges we have faced in the past year and those we face now. Specifically, I want to talk about where we are and where we are heading in the areas of reactor safety, security, and emergency preparedness.

Putting it that way may sound as though I am talking about three different topics. That is not the case. I see these areas as a tightly connected triad -- three intertwined areas, in which regulation works in an integrated, synergistic way to protect public health and safety. In fact, holistically, it is the functional combination of reactor safety, physical security, and emergency preparedness that provides the basis for the continued overall determination of reasonable assurance of adequate protection.

The relationship among these three areas can be understood by looking at their contributions to overall protection provided through defense-in-depth. The concept of defense in depth is a centerpiece of our approach to ensuring adequate protection of public health and safety. Defense-in-depth calls for, among other things, high quality design, fabrication, construction, inspection, and testing; multiple barriers to fission product release; redundancy and diversity in safety equipment; and procedures and strategies to address the expected as well as the unexpected. Defense-in-depth must be dynamic. It must incorporate the dynamics of risk-informed and performance-based decision making. Or better: use risk-informed and performance-based regulation to add realism to defense-in-depth conservatism.

But you already know about all of these aspects of reactor safety. What I really want to bring to the forefront are the interrelationships among reactor safety, security, and emergency preparedness and also their importance to our present focus on mitigation of potential terrorist threats. For example, security concerns, including terrorist threats, raise many of the same issues involved in avoiding and mitigating reactor accidents. Potential initiating events, safety functions, safety (and often non-safety) equipment and procedures, and design basis and severe accident management guidelines all converge to a simple postulate: shut down the reactor, cool the core, and maintain barrier integrity. These are things we know how to do well and should be able to do regardless of the initiating event.

The NRC is approaching safety, security, and emergency preparedness in an integral manner. For example, that integration can be seen in the application of the new alternate source term. Generally, we can say that what is good for safety is also good for achieving the objective of security. From a structural point of view, it is clear that reactor safety features that are designed to address such external events as tornados, hurricanes, fires, and floods also provide a high level of resistance to terrorist attacks. By the same token, these same structural features supported by the deployment of sound and visible physical protection measures are powerful deterrents to any terrorist activities.

Likewise, it is clear that such system requirements as redundant Emergency Core Cooling Systems, redundant and diverse heat removal systems, fire protection features (including separation and suppression systems), and Station Blackout capabilities (either additional AC power sources or coping capability without AC power) provide built-in means of dealing with attempted attacks on nuclear reactors. And lastly, the emergency procedures and severe accident management strategies developed for reactor accidents also provide means for mitigating the potential consequences of terrorist attacks should they occur. The industry has utilized emergency procedures and severe accident management strategies to implement enhancements required by the Commission's security orders of

February 25, 2002, because these procedures and strategies are so well suited to be effective against a broad range of events involving possible terrorist activities.

With regard to emergencies, both on-site and off-site mitigating measures will be taken. When the defense-in-depth procedures and strategies are used on-site, they are generally considered part of the reactor safety approach; when they go beyond the plant boundaries, they are generally considered part of "Emergency Preparedness." In treating emergency preparedness as another level of defense-in-depth, we are recognizing it as an integral part of our approach to protecting the public. Reactor fuel, reactor coolant systems, containment, emergency preparedness -- these are four barriers, each one complementing the others, and each one designed, tested, and inspected to provide a reasonable assurance of protecting the public and the environment from radiological releases.

Beyond the general relationships lie the specifics. The details of what challenges each barrier must address come directly from an analysis of the failure modes of the prior barrier. Realistic conservatism is needed to determine the likely, the unlikely, and the remote failure modes; and to identify the parameters and quantify the values important to barrier integrity. The basis for emergency preparedness requirements, including communication and coordination actions, is set by the timing, magnitude, and constituents of a potential radioactive release, which are derived from the capabilities of the reactor coolant system, the containment and other safety systems; that is, by the other defense-in-depth barriers.

Let me now turn from these more general thoughts to the specifics of where we are today in each of these areas, and what the path forward looks like to me.

II. Reactor Safety

"Reactor safety" refers to plant design and operational characteristics that provide protection against both design-basis accidents and severe accidents and to the training and capacity of the human beings at the controls. Reactor safety thus embraces systems, structures, and components; programs, practices and procedures; and knowledge, skills, and abilities. It also includes a factor not always measurable in numbers, but nevertheless crucially important, and that is commitment: a fundamental commitment to safety. Reactor safety and its regulation are not only about thinking and processes, they are also about knowing and doing. Let me pull no punches: it is about doing it right.

Today, reactor safety performance continues to be very sound. Safety measures, including performance indicators and inspection findings, are quite good for most plants. But safety measures by themselves are not enough -- it is essential that both licensees and the NRC maintain a high level of attention on commitment to safety and competence in safety. Commitment to safety must be deep, pervasive, and reflected in management's vision and expectations for success and in its willingness -- indeed eagerness -- to tackle tough day-to-day issues and provide the direction and resources to resolve them. Commitment to safety also means that everyone involved understands the safety implications of his or her job and has a sense of dedication to do it well -- commitment combined with technological know-how. I hope everyone here at this conference realizes I am not talking about plant operators or licensees only.

The NRC will maintain vigilance over reactor safety performance through performance indicators, the Reactor Oversight Program, inspection findings, and safety insights associated with

cross-cutting issues. We will also use other means, as needed. We need to remember that nuclear power is held to a higher standard than most other technologies; there is no room for slackness, and we will be granted no slack if we fail. This is reality; it might not be fully fair, but it is reality, today and for the foreseeable future.

Let's put the issue of nuclear safety in its historical context for a moment. As all of you know, this month marks the 25th anniversary of the Three Mile Island accident. For those who haven't yet read the fine new book about those events by J. Samuel Walker, the NRC Historian, let me recommend it now for everyone connected with nuclear power. It is a judicious and fair book, as well as a very readable one. One of its central points is that the accident provided grounds to comfort both the proponents and opponents of nuclear power and also to dismay them. The consequences of a serious accident turned out to be much less severe than what opponents had forecast, but at the same time, the likelihood of such an accident occurring turned out to be far greater than what the industry and the NRC had foreseen. The public's health was not physically harmed, although there certainly was some psychological trauma from the accident. It was, however, a closer call than it should have been, and it revealed that the assumptions of the NRC and the industry had been overly optimistic. The effect was to shake public confidence severely. At the time, there was a segment of the public that wanted to see every nuclear power plant shut down permanently, then and there.

Both the NRC and the industry learned some hard lessons from TMI and learned them well. The NRC's regulatory program was overhauled, and the industry, in part through the creation of the Institute for Nuclear Power Operations, undertook a major self-evaluation effort. The objective was internal industry discipline to improve the performance of weaker organizations, in part from the recognition that each operating plant was a reflection, for good or ill, on every other plant.

Where are we today, a quarter century later? The record shows that no member of the public has been exposed to a harmful level of radiation from a nuclear power plant; the NRC's licensees have increased the level of safety, and concurrently, reliability of the reactor fleet to match high performance expectations and surpass requirements; our regulations have become more effective in ensuring the protection of public health and safety and the common defense and security; and overall, nuclear power contributes significantly to the nation's energy supply and to its energy security.

In short, it is a record to be proud of, both for the industry and its regulators. And yet, in the same breath that I say that, I also want to add a word of caution. Of all the risk factors that contribute to serious safety problems, none is more insidious than complacency: the assumption that because nothing bad has happened, nothing bad will happen.

The fact that we haven't had events that harmed the public doesn't mean we haven't seen events that were unacceptable and should never have taken place. Davis-Besse is a prime example. It was resolved without harm to anyone, but still, it was no way to do business, either on the part of the licensee or on the part of the regulators. It shouldn't have been possible; probably most of the people in this room, myself included, if asked several years ago, would have said that such an event, going undetected for so long, was not credible. And yet it happened. We need to learn from that -- not only about the technical problems, but the attitudinal problems that caused the licensee and the NRC to drop the ball. Safety culture is more about know-how and commitment than about culture.

Before I go any further, I'd like to make emphatically clear that I'm not here to make predictions about unacceptable events. What I am saying is that this industry achieved the record of safety it has by knowing what to do, when to do it, and doing it in a very disciplined manner that I like to call "the nuclear way." That means turning square corners, not cutting them. It means shunning complacency. It means focusing on what really matters --Safety, with a capital "S." It means putting thought, energy, and money not just into operations and maintenance, but also into engineering. The importance of operational safety is etched in my mind, as well as its three vital components: operational safety in operations, in maintenance, and in engineering. And it means above all else, a commitment to Safety.

We have to maintain and enhance, with present know how, operational safety done the good old "nuclear way." Productivity is a worthy goal, but not at the expense of safety. Putting safety first has to be more than a slogan; it has to be a principle that is applied every day, 24/7. Mottos on the wall, if they aren't practiced, don't contribute one iota to safety; on the contrary, they could detract from it, by inducing a false sense of security.

Why do I emphasize that today? Because that is my job. In addition, I am hearing some concerns that corners perhaps aren't being turned quite as squarely in some cases as they used to be and as they ought to be. It has been my observation that safety and reliability are fully compatible --high capacity factors and efficiencies should be contributors to safety and never achieved at its detriment. While you are keeping costs down and capacity factors up, it is my expectation that safety margins will be maintained.

Let me switch gears. Enough on reflection, let's get to the action. I personally see the following activities as critical components to a path forward:

- Enhancing the oversight of reactor engineering and design issues (in ROP, licensing and rulemaking) including increased staff expertise in safety systems engineering; increased use of risk insights; and increased use of operating experience;
- Making demonstrable progress toward a risk-informed and safety- conscious resolution and implementation of actions related to PWR ECCS sump concerns;
- Resolving longstanding fire protection issues, including completion of the Section 50.48 (Fire Protection) rulemaking, endorsing NFPA-805 as appropriate;
- Development and implementation of the PRA quality action plan, consistent with the Commission's directions;
- Completion of the Section 50.46 risk-informed LOCA redefinition;
- Completion of the proposed Section 50.69 to risk-inform Special Treatment Requirements; and
- Establishing a clear plan (including the use of pilot projects) for achieving better regulatory "coherence" in the reactor area through risk-informing 10 CFR Part 50.

Many of these items are based on risk-informed and performance-based regulation. I believe they are critical to enable realistic conservative enhancements to the defense-in-depth that is the centerpiece of our approach to ensuring adequate protection of public health and safety.

III. Security

I'd like now to discuss another aspect of my triad and complete some of my thoughts on security. At last year's RIC, I reported as follows:

> "In the aftermath of the September 11 attacks, the Commission, unanimously, undertook a number of measures to improve security at nuclear power plants and to assess areas of possible vulnerability, with the intention to quickly arrive at the probables and work out mitigation strategies. The lessons learned and being learned guide the agency's and licensees' actions."

I am confident the statement holds true today.

A year has passed, and the NRC and the commercial nuclear industry continue to enhance the security of licensed nuclear facilities and of radioactive material. The defenses are there, and the value of deterrence is increasing. Several additional orders to enhance security have been issued, after the fundamental Interim Compensatory Measure order issued in February 2002. In April 2003, orders were issued to nuclear power plants and Category I fuel cycle facility licensees to require security enhancements to protect against the revised Design Basis Threat (DBT). The DBT represents the largest reasonable threat against which a regulated private guard force should be expected to defend under existing law. NRC has defined two DBTs, one for radiological sabotage and the other for the theft and diversion of nuclear material.

Two other orders were issued in April 2003 to enhance the readiness and capabilities of the security force personnel at nuclear power plants. One order establishes requirements to limit security force personnel working hours to provide reasonable assurance that the effects of fatigue will not adversely impact the readiness of security officers in performing their duties. The other order requires additional measures regarding security officer training and qualification, including exercising the protective strategies and capabilities required to defend nuclear power plants against sabotage by an attacking force. It also requires frequent firearms training and qualifications under a broad range of conditions representative of site-specific protective strategies.

We consider security performance assessment to be an important component of our safety, security, and emergency preparedness program and since February 2003, we have conducted 16 force-on-force exercises to determine the effectiveness of protective strategies. We are planning, on average, conducting two exercises each month in fiscal year 2004, consistent with the Commission's decision to conduct such exercises at each site on a three-year cycle. Force-on-force exercises are conducted to assess and improve, if necessary, performance of defensive strategies at licensed facilities. We are committed to do them more realistically and more effectively.

To complement security initiatives, the NRC has enhanced incident response capabilities by increasing the number of emergency exercises with other Federal agencies. In May 2003, NRC participated in TOPOFF 2, the second Congressionally-mandated, national-level exercise involving weapons of mass destruction, and last month the agency took part in UNIFIED DEFENSE 04, a U.S. Northern Command (NORTHCOM) conducted exercise. We continue to coordinate with the Department of Defense, including NORTHCOM and NORAD, and plan on participating in upcoming exercises.

We have made significant progress in the past year toward achieving an integrated response program for the defense of nuclear facilities. We will continue to work with the Homeland Security Council, the Department of Homeland Security, NORTHCOM, NORAD, other Federal departments and agencies, and State and local authorities to develop and implement nuclear and radiological security contingency plans that will complement licensees' capabilities to ensure protection of critical facilities.

Thus, it is clear that the security of our licensed facilities does not rely solely on the number of armed security officers, adequacy of security barriers, or other security features. Security, with a capital "S," is provided by multiple layers of defense. I can categorically state that the defensive capabilities of the nuclear power plants, coupled with the Federal, State, and local capabilities and a deployed physical security network is strong and getting stronger.

IV. Emergency Preparedness

I would now like to turn to the third area of the triad, emergency preparedness. Here, the NRC has had a strong program for more than two decades. The post-TMI improvements in the emergency planning area have served the nation well. It is a vital component of assurance of adequate protection where it counts the most --protection of the public from radiological hazards. It is also, today, an indispensable component of our obligation to earn, and hopefully to ensure, deserved public confidence in the discharge of our mandate. Emergency preparedness is assessed on an ongoing and continuing basis.

To further enhance emergency planning capabilities in this era of heightened concern over terrorism, the NRC recently created a new project office within the Office of Nuclear Reactor Regulation. This office serves to consolidate activities related to emergency planning and increase the management attention given them. The new office has identified several areas of emphasis which I see as important to our path forward, including the following:

- Improved communications with stakeholders, particularly State and local officials and the public living near nuclear power plants;
- Improved integration of security items into emergency preparedness exercises, which will be tested at the Indian Point exercise in the summer of 2004;
- Increased coordination among the NRC staff in NRR, NSIR and Research;
- A re-examination of the regulatory framework for emergency preparedness;
- Increased coordination with FEMA and clarification on addressing FEMA deficiency findings; and
- Re-evaluation of means of public notification.

Again, many of these initiatives stress the importance of increased integration of reactor safety, security, and emergency preparedness to achieve the objective of protection of the public.

Before I conclude, I would like to highlight one thing that is often overlooked or misunderstood regarding nuclear power plant hazards, there would be time to take actions to protect the public from a radiological release from a nuclear facility. This is a very important factor that has been fully taken into account in our emergency preparedness basis and remains true today.

V. Conclusion

I began my remarks by suggesting that this is a time for reflection and a time for action, and have tried to describe my views about where reflection and action should take us. I have emphasized how the components of the safety, security, and emergency preparedness program must work together. The public health and safety record of nuclear power plants in this country and its regulators during the past quarter century has been dependent on these components and will be in the future. My remarks today reflected both confidence in our capabilities to protect the public, as well as concerns with continuing to maintain and enhance safety. I know my concerns can be addressed because we know what to do, how to do it and when to do it.

We also know that success can lead to complacency. Complacency is satisfaction or self-satisfaction accompanied by unawareness of actual damages or deficiencies. Somewhere, sometime, when success is apparent, action must be taken to prevent complacency from threatening success.

The nuclear power industry has supplied the American people with reliable electrical energy and a measure of energy security, fully consistent with public health and safety, the common defense and security, and the protection of the environment. That makes it all the more important that we adhere to the practices and attitudes that have served us so well until now. An unswerving commitment to do what is right has brought us this far. It must permeate and help integrate safety, security, and emergency preparedness. We cannot allow that commitment to be compromised -- not in the plants, the boardrooms, or the NRC itself.

In another 25 years, when I believe energy portfolios will have been redefined, our country should be in a position to look back at 75 years of safe, secure, and environmentally responsible management and regulation of nuclear energy continuing to serve the American people. To reach that goal, everyone participating in the utilization or regulation of nuclear energy must be guided by the past, must be anchored in the reality of the present, and must be confident that the future can be mastered. This truly is a time for reflection and a time for action.

Thank you.